A.3.10 AOC 22

Description

AOC 22 is located south of the Shops Building in the Central Yard. This area was originally included as an AOC due to groundwater contamination identified during the removal of a 4,000-gallon steel UST in December 1995. The UST dispensed unleaded gasoline and was in operation from approximately 1968 to 1993. No evidence of leaks was identified during closure of the tank. The analytical results of the water sample obtained from the bottom of the excavation indicated the presence of benzene, toluene and ethylbenzene. After chlorinated hydrocarbons were detected in groundwater samples from AOC 22 during the RFI and it became apparent that they originated from a source different than the BTEX compounds, AOC 36 "Chlorinated Hydrocarbons in Groundwater" was established. Although the areas impacted by BTEX and chlorinated compounds overlap, the characteristics of these compounds are sufficiently different that the establishment of a new AOC was warranted.

As summarized on Table A.3.10, three monitoring wells (MW-167, MW-102, and MW-44), five soil samples, and three hydropunch groundwater samples have been used to characterize this area. The soil samples were analyzed for VOCs, SVOCs and metals, and groundwater samples from the three monitoring wells were analyzed for VOCs, SVOCs, metals and water quality parameters. Additional wells installed in SWMU 34 were also used to characterize this AOC.

Soils

There were no exceedances of the delineation criteria in any of the soil samples that were collected from the two new monitoring wells (e.g., MW-167/S1433 and MW-102/S0733), except for naturally-occurring iron.

The following table summarizes the number of samples where delineation criteria were exceeded:

Constituents of Concern	Surface Soils (0 to 2 ft)	Fill Material (>2 ft)	Native Soils	Total
Benzene	0/1	0/1	0/3	0/5
Other VOCs	0/1	0/1	0/3	0/5
Benzo(a)pyrene	0/1	0/1	0/3	0/5
Other PAHs	0/1	0/1	0/3	0/5
TAL metals[a]	0/1	0/1	0/3	0/5

[a]Totals do not include naturally occurring metal compounds in excess of the delineation criteria (Al, Ca, Fe, Mg, Mn, K and Na).

Surface Soils

Staining and odors were noted in surface soils at HP0013. There were no exceedances of any COCs in the surface soil sample from MW-102 (S0733), which was collected in close proximity to HP0013.

Fill Materials (>2 feet bgs)

Staining, odors, elevated PID readings and other evidence of petroleum impacts were noted in several of the subsurface fill samples at AOC 22. The fill layer is generally between one and 16 feet thick at AOC 22. There were no exceedances of any COCs in the subsurface fill sample from MW-167 (S1433H4).

Native Material

Native material consisting primarily of sand, silt and clay underlies the fill layer at depths ranging from approximately one feet to 16 feet bgs. No constituents were detected above the applicable soil delineation criteria in any of the three soil samples collected from the native material, with the exception of naturally-occurring iron. Therefore, the exceedances of soil criteria are vertically delineated.

As discussed further in Section 6 of the RFI Report, lateral delineation of selected COCs has been completed on a site-wide basis for each Yard. The delineation of these COCs is depicted graphically on the figures provided in Section 6.

The SPLP sample from S0733D2 contained 2.64 mg/L of naturally-occurring aluminum, which slightly exceeds the applicable criteria for SPLP aluminum (2.2 mg/L)[1]. No other metals were detected above applicable SPLP criteria in this sample. Therefore, the soils are not a source of metal impacts to groundwater.

Groundwater

As discussed above, AOC 22 was previously included as an AOC due to groundwater contamination in the vicinity of the former UST at this location. During the 1st-Phase RFI (1996), BTEX was identified at HP0014 at concentrations greater than 20,000 µg/L. Recent groundwater sampling (October 2002) at MW-102 has demonstrated that BTEX is present in groundwater above the applicable groundwater delineation criteria. Chlorinated VOCs (1,1,1-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, tetrachloroethene and trichloroethene), bis(2ethylhexyl) phthalate, cyclohexane and naphthalene were also detected above the applicable groundwater delineation criteria in groundwater from AOC 22. The only COC metals detected above the applicable groundwater delineation criteria in recent monitoring well samples were arsenic (9.7 µg/L, at MW-102) and nickel (162 µg/L, at MW-44). When the chlorinated compounds were detected and it became apparent that they originated from a source different than the

[1]Based on the groundwater criterion for aluminum (200 µg/L), DAF = 11.

BTEX compounds, AOC 36 "Chlorinated Hydrocarbons in Groundwater" was established. This AOC is the subject of on-going groundwater investigations, which are discussed in detail in Section 8 of the RFI Report.

Summary

Soil data collected in the vicinity of AOC 22 indicate that soils have not been impacted in this area, nor are they a source of the dissolved organic COCs observed in groundwater. Therefore, Chevron recommends no further action for soils at AOC 22. However, as discussed in greater detail in Section 8 of the RFI Report, chlorinated VOCs, BTEX and other COCs have been detected at concentrations above the groundwater delineation criteria, and it appears that the dissolved organic constituents from the Shops Building area are migrating toward SWMU 34. Therefore, a new AOC (AOC 36) has been established and will be included in the CMS for further evaluation.